Volunteer Lake Assessment Program Individual Lake Reports

SPECTACLE POND, ENFIELD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	808	**Max. Depth (m):**	5.5	**Flushing Rate (yr^{-1})**	1.4
Surface Area (Ac.):	108	**Mean Depth (m):**	3	**P Retention Coef:**	0.68
Shore Length (m):	4,200	**Volume (m^3):**	1,313,500	**Elevation (ft):**	1183

TROPHIC CLASSIFICATION

Year	Trophic class
1982	OLIGOTROPHIC
1995	OLIGOTROPHIC

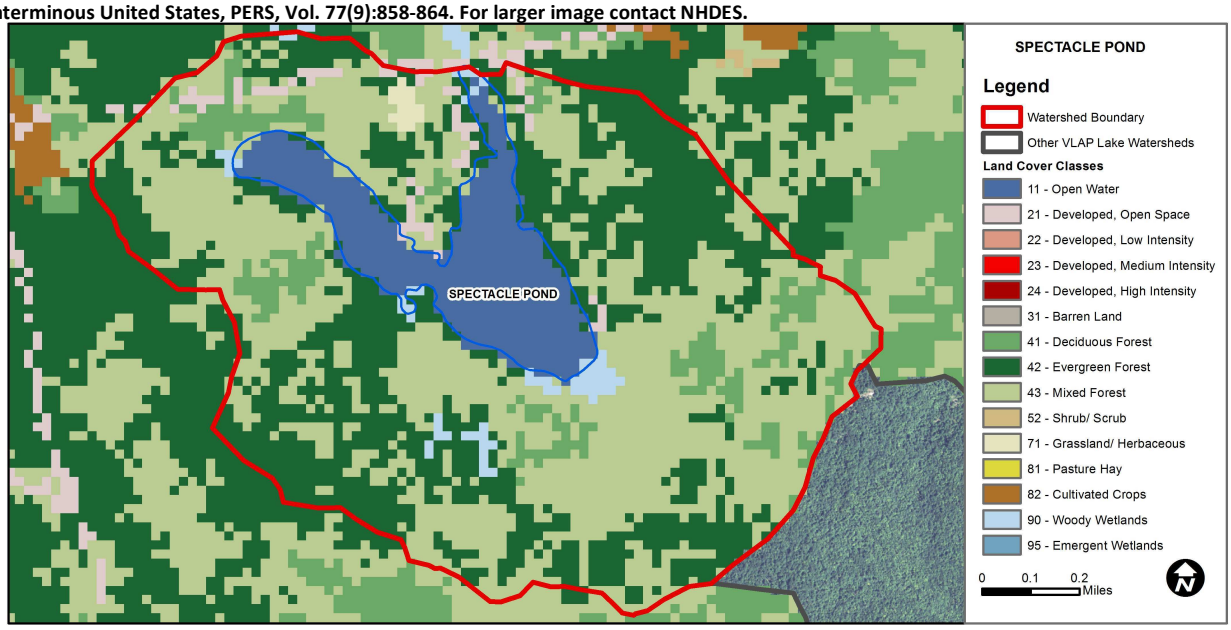
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Encouraging	There are < 10 samples with 0 exceedances of indicator. More data needed.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	11.3	Barren Land	0	Grassland/Herbaceous	0.45
Developed-Open Space	1.78	Deciduous Forest	6.88	Pasture Hay	0
Developed-Low Intensity	0	Evergreen Forest	32.83	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	45.06	Woody Wetlands	1.7
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0

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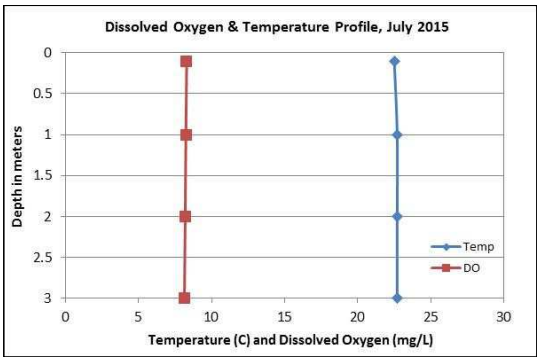
Spectacle Pond, Enfield

2015 Data Summary

Recommended Actions: Pond water quality is good and representative of Oligotrophic, or high quality water, conditions. Outlet conductivity is slightly elevated likely due to the use of road salt in the winter. Continue to collect chloride data from the Epilimnion and Outlet to monitor long term chloride trends. Encourage local road agents to obtain a NH Voluntary Salt Applicator license through UNH's Technology Transfer Center's Green SnowPro Certification program. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff from shoreline properties and stabilizing shorelines by maintaining vegetated buffers. DES' "NH Homeowner's Guide to Stormwater Management" is a great resource for homeowners.

Observations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels were slightly above average for the pond and approximately equal to the state median. Visual inspection of historical data indicates stable chlorophyll levels since monitoring began.
- **Conductivity/Chloride:** Epilimnetic (upper water layer) and Outlet conductivity and/or chloride levels were approximately equal to the state median. Visual inspection of historical data indicates stable epilimnetic conductivity since monitoring began. Epilimnetic conductivity increased in 2015 likely as a result of a composite sample of 2 and 3 meters being utilized instead of a discrete sample at 2 meters. This was a result of equipment error. Moose Brook conductivity levels remained low and less than the state median.
- **E. coli:** Pump E. coli levels were very low and much less than the state standards for public beaches (88 cts/100 mL) and surface waters (406 cts/100 mL).
- **Total Phosphorus:** Epilimnetic phosphorus was also slightly above average for the pond likely due to the composite sample versus historical discrete samples. Epilimnetic phosphorus remained less than the state median and visual inspection of historical data indicates stable epilimnetic phosphorus since monitoring began. Outlet phosphorus levels were also low. Moose Brook phosphorus was slightly elevated however this is within an average range for this station and may be naturally occurring.
- **Transparency:** Transparency was not measured in 2015 due to the equipment error and the loss of the Secchi disk. We apologize for any inconvenience. Visual inspection of historical data indicate stable transparency since monitoring began.
- **Turbidity:** Epilimnetic and Moose Brook turbidities were relatively low and within average ranges for those stations. Outlet turbidity was slightly above average for that station but not elevated.
- **pH:** Epilimnetic, Moose Brook and Outlet pH levels were less than the desirable range 6.5-8.0 units. However historically, epilimnetic pH has fluctuated between desirable and less than desirable levels. Visual inspection of historical data indicates variable epilimnetic pH since monitoring began.



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

Station Name	Table 1. 2015 Average Water Quality Data for SPECTACLE POND							
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Turb. ntu	pH
Epilimnion	7.8	4.54	5	49.9		9	1.04	6.42
Moose Brook				22.1		25	0.81	6.06
Outlet				54.8		10	1.36	6.29
Pump					10			

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	N/A	Ten consecutive years of data necessary for analysis.	Chlorophyll-a	N/A	Ten consecutive years of data necessary for analysis.
pH (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.	Transparency	N/A	Ten consecutive years of data necessary for analysis.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.